

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows in accordance with the listing of claims set forth below.

This listing of claims will replace all prior versions, and listings, of all claims in the application.

LISTING OF THE CLAIMS

Claim 1. (Currently amended) A device for electrolytically treating an at least superficially electrically conducting work piece (1) having substantially opposing side edges (24), said device comprising current supply devices for the work piece, said current supply devices each comprising contact strips (5) for electrically contacting the work piece (1) at the substantially opposing side edges (24);

the contact strips being arranged permanently mounted in a treatment tank so that the contact strips receive a work piece that is to be electrolytically treated and the contact strips hold the work piece in the treatment tank during the electrolytic treatment of the work piece, wherein the permanently mounted contact strips are movable within said treatment tank to receive and hold the work piece (1) in a treatment tank (4) and being stationed within the treatment tank (4).

Claim 2. (Previously presented) The device according to claim 1, wherein the contact strips (5) are configured in such a manner that they are capable of holding the work piece (1).

Claim 3. (Previously presented) The device according to claim 1, wherein at least two respective contact strips (5) are combined in one contacting frame and two contacting frames are guidedly movable toward each other or away from each other for

opening and closing so that the work piece (1) can be removably clamped between the contacting frames.

Claim 4. (Previously presented) The device according to claim 1, wherein the contact strips (5) are secured to a supporting frame (17).

Claim 5. (Original) The device according to claim 4, wherein the size of the supporting frame (17) is substantially the same as the size of the work piece (1).

Claim 6. (Original) The device according to claim 5, wherein the shape of the supporting frame (17) is substantially the same as the shape of the work piece (1).

Claim 7. (Previously presented) The device according to claim 4, wherein the work piece (1) is board-shaped and rectangular and the supporting frames (17) each have four contact strips (5) that are oriented substantially parallel to the side edges of the work piece (1).

Claim 8. (Previously presented) The device according to claim 4, wherein at least two supporting frames (17) are provided for retaining a board-shaped work piece (1), each of them being associated with a respective side of the work piece (1).

Claim 9. (Previously presented) The device according to claim 4, wherein the supporting frames (17) are capable of holding the work piece (1) either directly or through the contact strips (5).

Claim 10. (Previously presented) The device according to claim 4, wherein the supporting frames (17) are supported on supporting points (21) through supporting elements (6,22, 23,27) in a tank (4) serving to hold processing fluid.

Claim 11. (Original) The device according to claim 10, wherein the supporting elements (6,22, 23,27) are configured to be movable so that the positions of the

supporting frames (17) relative to the supporting points (21) in the tank (4) may be varied.

Claim 12. (Previously presented) The device according to claim 10, wherein the supporting elements (6,22, 23,27) are configured in such a manner that a board-shaped work piece (1) that is fed between two supporting frames (17) and/or contacting frames each associated to a respective side of the work piece (1) can be clampingly held there between.

Claim 13. (Currently amended) The device according to claim 55 [[1]], wherein the device comprises counter electrodes (16) that are disposed opposite the work piece (1).

Claim 14. (Original) The device according to claim 13, wherein the counter electrodes (16) are mounted to the supporting frames (17).

Claim 15. (Previously presented) The device according to claim 13, wherein the counter electrodes (16) are movable parallel to the surface of the work piece (1).

Claim 16. (Previously presented) The device according to claim 13, wherein the counter electrodes (16) are disposed substantially parallel to the work piece (1) and are movably carried on the supporting frames (17).

Claim 17. (Previously presented) The device according to claim 13, wherein the size of the counter electrodes (16) approximately corresponds to the useful area on the work piece (1) that is to be electrolytically treated.

Claim 18. (Previously presented) The device according to claim 1, wherein measuring probes are mounted opposite the surfaces of the work piece (1).

Claim 19. (Previously presented) The device according to claim 4, wherein frame covers (20) are mounted to the supporting frames (17) and/or contacting frames in such a manner that the covers (20) and the work piece (1) form closed compartments.

Claim 20. (Original) The device according to claim 19, wherein the covers (20) are fluid-tight or almost fluid-tight or wherein they are ion-permeable.

Claim 21. (Previously presented) The device according to claim 19, wherein the covers (20) are shaped in such a manner that the counter electrodes (16) are disposed within the closed compartments.

Claim 22. (Previously presented) The device according to claim 19, wherein feed tubes (25) for feeding the processing fluid to the closed compartments and drain tubes (25) for evacuating said fluid from said closed compartments are provided in the covers (20) and/or in the supporting frames (17).

Claim 23. (Previously presented) The device according to claim 4, wherein the supporting frames (17), the contact strips (5) and counter electrodes (16) contained in the device are movable together as one combined unit in such a manner that, during electrolytic treatment, the work piece (1) is held by this unit while the contact strips (5) can be brought into electrical contact with the work piece (1) and that after electrolytic treatment the work piece (1) can be released from said unit and the electric contact be disconnected again.

Claim 24. (Previously presented) The device according to claim 1, wherein the device is part of a conveyORIZED plating line or of a dip plant for treating a work piece (1) being an electrical printed circuit board.

Claim 25. (Original) The device according to claim 24, wherein the device

comprised in the conveyorized plating line further comprises treatment tanks (4) that are each equipped with entry and exit regions as well as conveying devices (29) for the printed circuit boards (1) and current sources for the current supply devices (5).

Claim 26. (Withdrawn) A method for electrolytically treating an at least superficially electrically conducting work piece, comprising electrically contacting the work piece (1) at substantially opposing side edges (24) through contact strips (5) serving as current supply devices;

the contact strips being arranged to receive and hold the work piece (1) in a treatment tank (4) and being stationed within the treatment tank (4).

Claim 27. (Withdrawn) The method according to claim 26, further comprising holding the work piece (1) by means of the contact strips (5) and/or by means of supporting frames (17) carrying the contact strips (5).

Claim 28. (Withdrawn) The method according to claim 26, further comprising, for electrolytic treatment, removably clamping the work piece (1) between the contact strips (5) and/or the supporting frames (17).

Claim 29. (Withdrawn) The method according to claim 26, further comprising combining at least two respective contact strips (5) in one contacting frame and guidedly moving two contacting frames toward each other or away from each other for opening and closing, respectively, so that the work piece (1) is removably clamped between the contacting frames.

Claim 30. (Withdrawn) The method according to claim 26, further comprising - providing supporting frames (17) with four supporting frame legs each which are oriented substantially parallel to the side edges (24) of the work piece (1) being a rectangular

board and/or linking together at least two contact strips (5) in one contacting frame and - linking together two contacting frames and/or supporting frames (17) through a respective supporting frame leg or through a contact strip (5) in such a manner that the board (1) is removably clamped between the frames and - electrolytically treating the work piece (1).

Claim 31. (Withdrawn) The method according to claim 29, further comprising disposing counter electrodes (16) on the supporting frames (17) in such a manner that they are facing the work piece (1) on one side at least.

Claim 32. (Withdrawn) The method according to claim 29, further comprising disposing frame covers (20) on the supporting frames (17) and/or on the contacting frames in such a manner that the covers (20) and the work piece (1) form closed compartments.

Claim 33. (Withdrawn) The method according to claim 32, further comprising shaping the covers (20) in such a manner that the counter electrodes (16) are located within the closed compartments.

Claim 34. (Withdrawn) The method according to claim 32, further comprising feeding processing fluid to the closed compartments via feed tubes (25) in the covers (20) or evacuating said fluid from said closed compartments via drain tubes (25) in the covers (20).

Claim 35. (Withdrawn) The method according to claim 29, further comprising - receiving and taking hold of the work piece (1) by the supporting frames (17) and/or by the contacting frames, - thereafter starting electrolytic treatment by supplying electric current to the work piece (1) through the current supply devices (5), - thereafter

disconnecting electric current supply after completion of electrolytic treatment and - finally releasing the work piece (1) from the supporting frames (17) and/or contacting frames.

Claim 36. (Withdrawn) The method according to claim 35, further comprising, for a treatment in a dip plant having a plurality of treatment tanks (4), - receiving and taking hold of the work piece (1) by the supporting frames (17) and/or by the contacting frames, - immersing the work piece (1) together with the supporting frames (17) and/or contacting frames into a first processing fluid in a first treatment tank (4), - in the processing fluids in the treatment tanks (4), electrolytically treating the work piece (1) by having current supply devices (5) supplying the work piece (1) with electric current and - upon completion of the treatment in the dip plant, releasing the work piece (1) from the supporting frames (17) and/or contacting frames.

Claim 37. (Withdrawn) The method according to claim 36, further comprising, after having immersed the work piece (1) into in a first treatment tank (4), consecutively immersing the work piece (1) together with the supporting frames (17) and/or contacting frames into further processing fluids contained in further treatment tanks (4).

Claim 38. (Withdrawn) The method according to claim 35, further comprising, for a treatment in a conveyORIZED plating line, - moving the work piece (1) in a horizontal direction of transport to the supporting frames (17) and/or to the contacting frames of a first treatment device in the line, - after having been received by the supporting frames (17) and/or by the contacting frames of the first treatment device in the line, electrolytically treating the work piece (1) and - after having treated the work piece (1) in the first treatment device, releasing the work piece (1) by the supporting frames (17)

and/or contacting frames of the treatment device in the line.

Claim 39. (Withdrawn) The method according to claim 38, further comprising, after having treated the work piece (1) in the first treatment device in the line, - treating the work piece (1) in further treatment devices in the line and, - after having treated the work piece (1) in any respective further treatment device in the line, releasing the work piece (1) by the supporting frames (17) and/or contacting frames of the respective treatment device and moving the work piece (1) in the horizontal direction of transport to further treatment devices.

Claim 40. (Withdrawn) The method according to claim 38, further comprising holding the work piece (1) by the supporting frames (17) and/or contacting frames remain in one place in the conveyORIZED plating line during electrolytic treatment.

Claim 41. (Withdrawn) The method according to claim 38, further comprising - moving the supporting frames (17) and/or contacting frames holding the work piece (1) in the horizontal direction of transport from an entry region to an exit region in the conveyORIZED plating line and - moving the supporting frames (17) and/or contacting frames back from the exit region to the entry region after release of the work piece (1) in order to be capable of receiving a new work piece (1).

Claim 42. (Previously presented) The device according to claim 2, wherein at least two respective contact strips (5) are combined in one contacting frame and two contacting frames are guidedly movable toward each other or away from each other for opening and closing so that the work piece (1) can be removably clamped between the contacting frames.

Claim 43. (Previously presented) The device according to claim 2, wherein the contact strips (5) are secured to a supporting frame (17).

Claim 44. (Previously presented) The device according to claim 2, wherein the device comprises counter electrodes (16) that are disposed opposite the work piece (1).

Claim 45. (Withdrawn) The device according to claim 2, wherein measuring probes are mounted opposite the surfaces of the work piece (1).

Claim 46. (Withdrawn) The device according to claim 2, wherein the device is part of a conveyORIZED plating line or of a dip plant for treating a work piece (1) being an electrical printed circuit board.

Claim 47. (Withdrawn) The method according to claim 27, further comprising combining at least two respective contact strips (5) in one contacting frame and guidedly moving two contacting frames toward each other or away from each other for opening and closing, respectively, so that the work piece (1) is removably clamped between the contacting frames.

Claim 48. (Withdrawn) The method according to claim 28, further comprising combining at least two respective contact strips (5) in one contacting frame and guidedly moving two contacting frames toward each other or away from each other for opening and closing, respectively, so that the work piece (1) is removably clamped between the contacting frames.

Claim 49. (Withdrawn) The method according to claim 47, further comprising, for electrolytic treatment, removably clamping the work piece (1) between the contact strips (5) and/or the supporting frames (17).

Claim 50. (Withdrawn) The method according to claim 27, further comprising - providing supporting frames (17) with four supporting frame legs each which are oriented substantially parallel to the side edges (24) of the work piece (1) being a rectangular board and/or linking together at least two contact strips (5) in one contacting frame and - linking together two contacting frames and/or supporting frames (17) through a respective supporting frame leg or through a contact strip (5) in such a manner that the board (1) is removably clamped between the frames and - electrolytically treating the work piece (1).

Claim 51. (Withdrawn) The method according to claim 28, further comprising - providing supporting frames (17) with four supporting frame legs each which are oriented substantially parallel to the side edges (24) of the work piece (1) being a rectangular board and/or linking together at least two contact strips (5) in one contacting frame and - linking together two contacting frames and/or supporting frames (17) through a respective supporting frame leg or through a contact strip (5) in such a manner that the board (1) is removably clamped between the frames and - electrolytically treating the work piece (1).

Claim 52. (Withdrawn) The method according to claim 50, further comprising, for electrolytic treatment, removably clamping the work piece (1) between the contact strips (5) and/or the supporting frames (17).

Claim 53. (Previously presented) The device of claim 1, wherein the treatment tank (4) is a vertical dip tank.

Claim 54 (Previously presented) The method of claim 26, wherein the treatment tank (4) is a vertical dip tank.

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Claim 55 (New) A device for electrolytically treating an at least superficially electrically conducting work piece having substantially opposing side edges, said device comprising current supply devices for the work piece, said current supply devices each comprising contact strips for electrically contacting the work piece at the substantially opposing side edges;

said contact strips being arranged in the treatment tank so as to receive the work piece in the treatment tank, so as to hold the work piece in the treatment tank and so as to be permanently stationed in the treatment tank; wherein the permanently stationed contact strips are displaceable within said treatment tank.

Claim 56. (New) The device according to claim 55, wherein the contact strips (5) are secured to a supporting frame (17).